20. Cavity according to claim 19, in which the doping ion is neodymium (Nd).

21. Cavity according to claim 19, in which the proportion of the doping ion(s) is 0.1 to 10 moles % for each ion.

22. Laser cavity according to claim 17, in which the monocrystalline layer of a saturable absorbent material is a YAG doped with one or several doping ions chosen among Chromium (Cr), Erbium (Er), Thulium (Tm), and Holmium (HO) ions.

23. Laser cavity according to claim 22, in which the said doping ion is Chromium.

24. Cavity according to claim 22, in which the proportion of the doping ion(s) is 1 to 10 moles % for each doping ion.

25. Cavity according to claim 17, in which the layer and/or the substrate are (also) doped with at least one (other) doping agent or substitute in order to modify their structural and/or optical properties.

26. Cavity according to claim 25, in which the said (other) doping ion is chosen among gallium and inactive rare earths.

27. Cavity according to claim 17, in which the thickness of the monocrystalline layer of saturable absorbent material is between 1 and 500 µm.

28. Cavity according to claim 17, in which the said monocrystalline layer of saturable absorbent material is a thin layer with a thickness of between 1 and 150 µm.

HAYES, SOLOWAY,
HENNESSEY, GROSSMAN
& HAGE, P.C.
175 CANAL STREET
MANCHESTER, NH
03101-2335 U.S.A.

603-668-1400

29. Cavity according to claim 17, which also comprises an entry mirror and an exit mirror, the said entry mirror being directly deposited on the substrate made of a saturable absorbent material.

30. Laser cavity according to claim 29, in which the exit mirror is directly deposited on the monocrystalline layer made of a saturable absorbent material.

31. Process for the collective production of triggered microlaser cavities with controlled polarization comprising the following steps:

- a substrate made of a doped or undoped $Y_3Al_5O_{12}$ (YAG) active laser material with a [100] orientation is supplied in the shape of a sheet with parallel faces polished on its two faces;
- a monocrystalline layer of doped YAG saturable absorbent material is deposited on one of the faces of the said $Y_3Al_5O_{12}$ (YAG) active laser material, by liquid phase epitaxy or by a similar process;
- the saturable absorbent monocrystalline layer thus deposited is polished;
- the entry and exit mirrors are deposited on the two polished faces of the cavity;
- the substrate - monocrystalline layer - mirrors complex thus obtained is cut out.

32. Triggered laser with controlled polarization comprising a cavity like the cavity according to claim 17, and pumping means for this cavity.

HAYES, SOLOWAY,
HENNESSEY, GROSSMAN
& HAGE, P.C.
175 CANAL STREET
MANCHESTER, NH
03101-2335 U.S.A.

603-668-1400